PIN PHOTO DIODE

■ GENERAL DESCRIPTION

The NJL6170R/6171R are the 6-divided PIN photo diode, which used in CD audio player.
It shrinks the outline by COBP (Chip on Board Package), and attain under half package volume compared with lead frame type.

■ FEATURES

• Miniature, thin type
(2.5mmX3.0mmX1.16mm)

■ APPLICATIONS

• CD Audio player etc.

■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Reverse Voltage	V_R	30	V
Operating Temperature	T_{opr}	-30 to +85	°C
Storage Temperature	T_{stg}	-40 to +100	°C
Reflow Soldering Temperature	T_{sol}	260 (10sec.)	°C

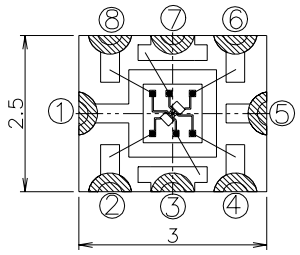
■ ELECTRO-OPTICAL CHARACTERISTICS (Ta=25°C)

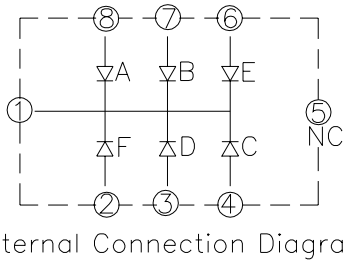
PARAMETER	SYMBOL	TEST CONDITION		MIN	TYP	MAX	UNIT
Reverse Voltage	V_R	I_R=10μA	* 1, 2	30	—	—	V
Dark Current	I_D	V_R=15V	* 2	—	—	0.2	nA
			* 1	—	—	0.3	nA
Capacitance	Ct	V_R=15V, f=1MHz	* 2	—	2	—	pF
			* 1	—	3	—	pF
Short circuit Current	Isc	Ev=1000lx	* 2	17	—	53	nA
			* 1	110	—	330	nA
Sensitivity	S	λ=780nm	* 1, 2	—	0.5	—	A/W
Response time	tr,tf	V_R=15V, RL=180Ω	* 2	—	100	—	nS
			* 1	—	200	—	nS
Peak Wavelength	λP	—	* 1, 2	—	800	—	nm
Forward Voltage	V_F	I_F=1mA	* 1, 2	—	—	1.7	V

* See Pattern segment No.

■ OUTLINE (typ.) Unit : mm

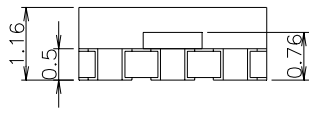
NJL6170R

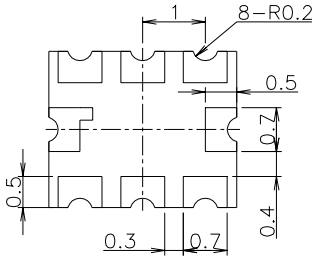


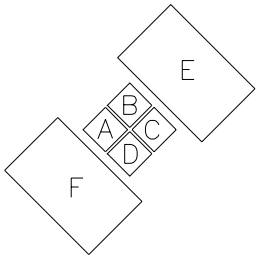


Internal Connection Diagram

①	cathode
②③④	anode
⑤	NC
⑥⑦⑧	anode





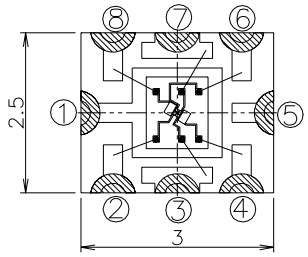


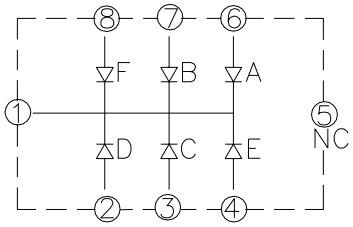
PD Pattern

Pattern segment No.

1	E, F
2	A, B, C, D

NJL6171R





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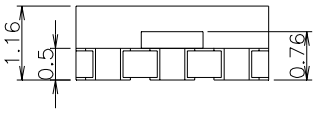

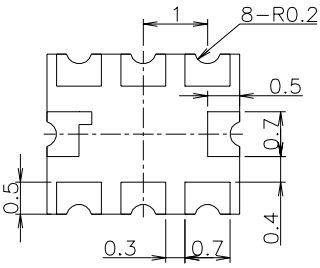

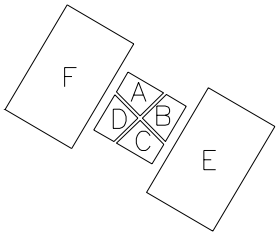

PD Pattern

Pattern segment No.

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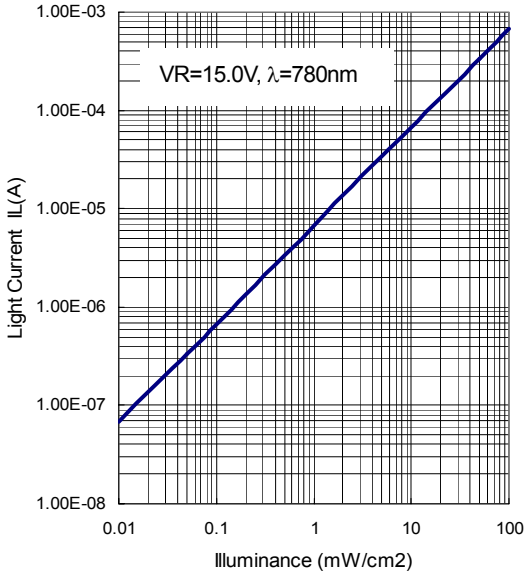
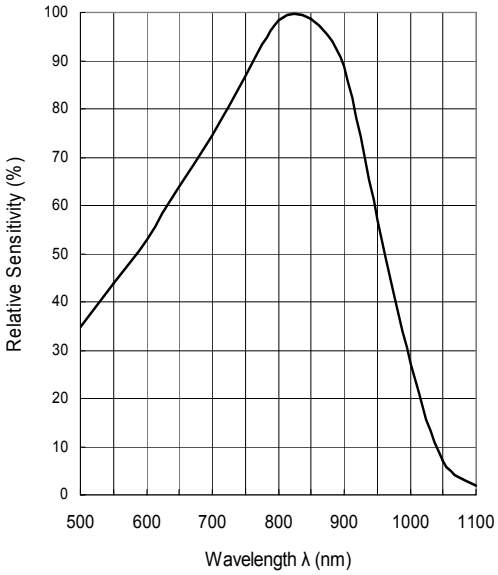
■ TYPICAL CHARACTERISTICS

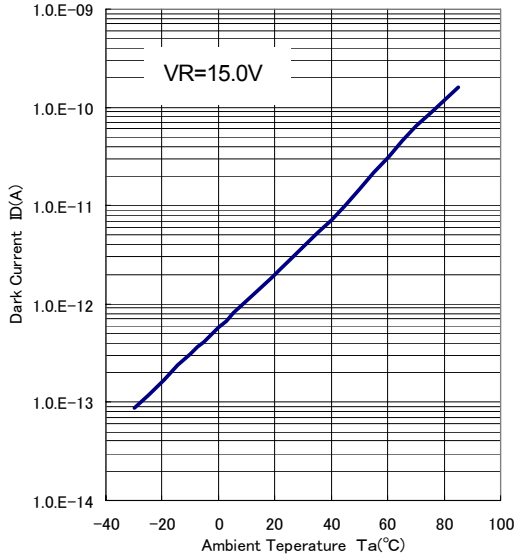
Relative Sensitivity vs. Illuminance (Ta=25°C)



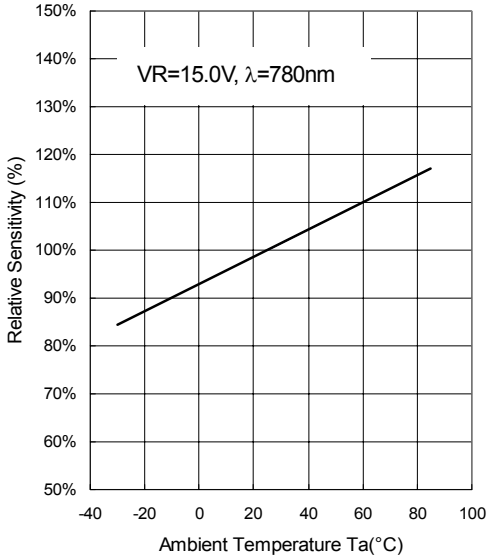
Spectral Response (Ta=25°C)



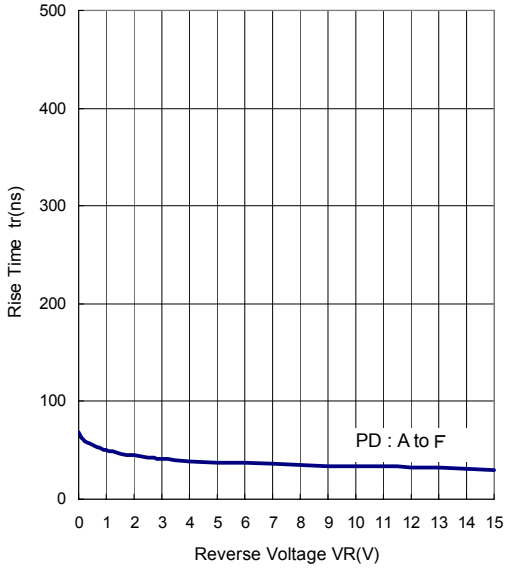
Dark Current vs. Temperature



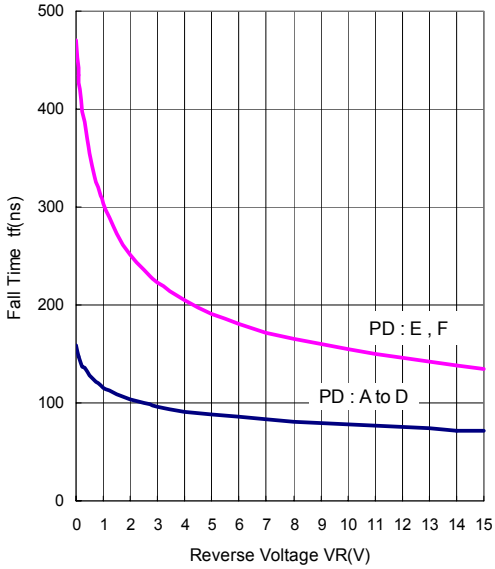
Relative Sensitivity vs. Temperature

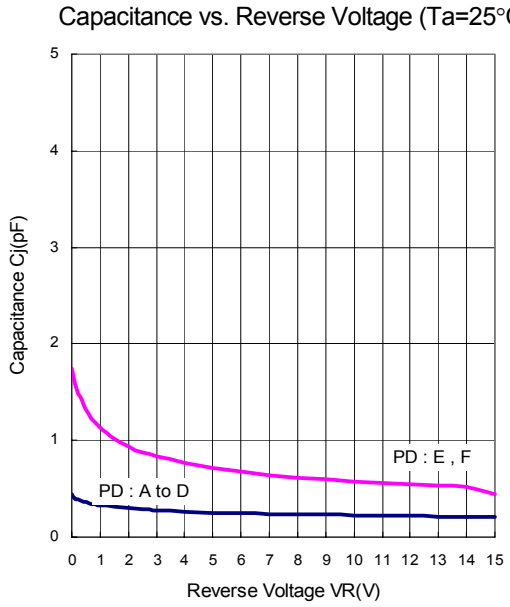


Rise Time vs. Reverse Voltage (Ta=25°C)

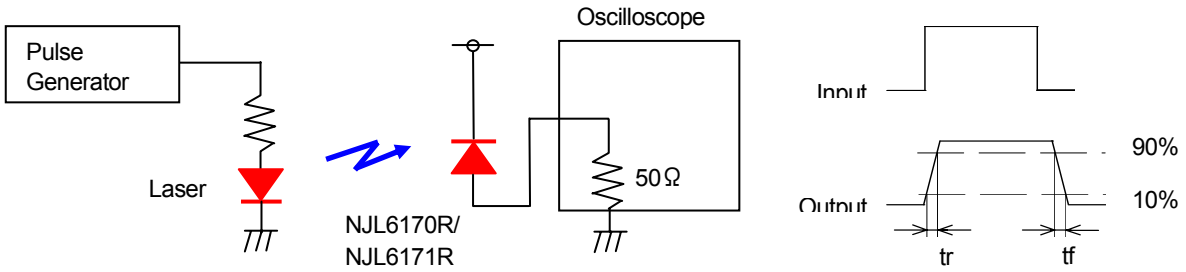


Fall Time vs. Reverse Voltage (Ta=25°C)





■ MEASURING CIRCUIT FOR RESPONSE TIME



PRECAUTION FOR HANDLING

1. Soldering to actual circuit board

Soldering condition

- Heated condition of plastic package.

Lower than 240°C of maximum surface temperature, less than 30 seconds of time kept higher than 200°C.

Soldering Method

1) Reflow Method

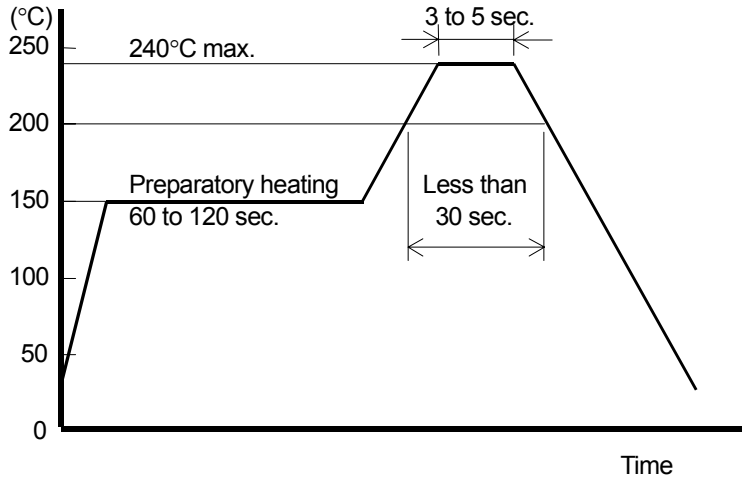
Recommended temperature profile of its method.

①Preparatory heating condition : 120 to 150°C about 60 sec.

②Recommended soldering temperature : 230 to 240°C about 3 to 5 sec.

③Slowly cool down right after soldering.

④Soldering to be done within twice under this condition.



2) Reflow Method (In case of infrared heating)

- Temperature profile : Same to the above
- Avoid direct irradiation to the plastic package because it is mold resin, absorbs the Infrared Radiation and its surface temperature will be higher than lead itself.

3) The other method

Avoid rapid heating up like dipping the devices directly into the melting solder or vapor phase method (VPS).
If the device is heated to high temperature and kept in its condition for longer time, it would affect to its reliability.
It is necessary to solder in short time as soon as possible.

2. Cleaning

Avoid washing of the device after soldering by reflow method.

3. Attention in handling

1) Treat not to touch the lens surface.
2) Avoid dust and any other foreign materials (paint, bonding material, etc.) on the lens surface.
3) When mounting, special care has to be taken on the mounting position and tilting of the device because it is very important to place the device to the optimum position to the object.

4. Storage

In order to prevent from degradation of this device in moisturing at reflow method, so that this device is contained in deaeration packaging. So that mounts the device as short as possible after opening the envelope.

MEMO